

ANNUAL REPORT OF THE OHIO ACADEMY OF SCIENCE

1958

Organized 1891

Incorporated 1892

Affiliated with the American Association for the Advancement of Science

OFFICERS AND COMMITTEES FOR 1958

President

RICHARD P. GOLDTHWAIT

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GEORGE W. BURNS

Treasurer

ELTON F. PADDOCK

Director of Public Relations

JOHN R. COASH

Executive Secretary, Junior Division

GEORGE G. ACKER

Assistant Executive Secretary, Junior Division

ROBERT E. MCKAY

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- | | |
|---|--|
| A. Zoology: T. C. SURREARER | F. Geography: J. F. LOUNSBURY |
| B. Plant Sciences: J. VERDUIN | G. Chemistry: G. H. BROWN |
| AB. Chm. Subsection on Genetics: J. H. COOPER | H. Science Education: W. R. ZEITLER |
| C. Geology: W. A. RICE | I. Anthropology and Sociology: D. P. IRISH |
| D. Medical Sciences: L. C. HUNSICKER | J. Conservation: I. I. DICKMAN |
| E. Physics and Astronomy: M. L. POOL | |

Membership Vice-Presidents

- | | |
|--|--|
| A. Zoology: C. C. DAVIS | F. Geography: H. L. HUNKER |
| B. Plant Sciences: R. W. LONG | G. Chemistry: F. L. JAMES |
| AB. Vice-Chm. Subsection on Genetics: C. COHEN | H. Science Education: J. RANDALL |
| C. Geology: R. H. DURRELL | I. Anthropology and Sociology: S. NEWMAN |
| D. Medical Sciences: | J. Conservation: E. H. DUSTMAN |
| E. Physics and Astronomy: H. N. MAXWELL | |

COMMITTEES

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R. P. GOLDTHWAIT, Chm., G. W. BURNS, E. F. PADDOCK, G. G. ACKER, R. A. POPHAM,
W. C. KRAATZ, W. A. RICE

Nominating

MEMBERS OF EXECUTIVE COMMITTEE

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EXECUTIVE VICE-PRESIDENTS AND THE SECRETARY, Chairman

Library

Academy Librarian, DONALD PEARCE, Chairman

C. E. HOEL.....Term expires 1959 W. P. SPENCER.....Term expires 1961

Publications

THE SECRETARY, Chairman

C. E. Hoel.....Term expires 1959
W. P. SPENCER.....Term expires 1961

Trustees of Research Funds

G. W. BLAYDES, Chm....Term expires 1959
W. C. BEAVER.....Term expires 1960
H. V. KNORR.....Term expires 1961

Necrology

H. H. M. BOWMAN, Chm...Term expires 1959
A. G. McQUATE.....Term expires 1960
J. T. MADDOX.....Term expires 1961

Resolutions

R. V. BANGHAM, Chm....Term expires 1959
F. O. HAZARD.....Term expires 1960
K. L. KELLEY.....Term expires 1961

THE OHIO JOURNAL OF SCIENCE 58(4): 250, July, 1958.

Ohio Flora

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Institution and Corporation Memberships

PAUL ROTHMUND, Chairman
 G. H. CROWL
 E. F. PADDOCK

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1. On the Joint Administrative Board of The Ohio Journal of Science:
 C. E. HOEL.....Term expires 1959 W. P. SPENCER.....Term expires 1961
2. On the Council of the American Association for the Advancement of Science:
 G. W. BURNS

The Council for 1958-1959

G. G. ACKER
 R. V. BANGHAM
 G. W. BLAYDES
 H. H. M. BOWMAN
 E. L. BRAUN
 G. H. BROWN
 G. W. BURNS
 J. R. COASH
 C. COHEN
 J. H. COOPER
 C. C. DAVIS
 R. W. DEXTER
 I. I. DICKMAN

R. H. DURRELL
 E. H. DUSTMAN
 R. P. GOLDTHWAIT
 C. E. HOEL
 H. L. HUNKER
 L. C. HUNSICKER
 D. P. IRISH
 F. L. JAMES
 W. C. KRAATZ
 R. W. LONG
 J. H. LOUNSBURY
 H. N. MAXWELL
 R. E. MCKAY

S. C. NEWMAN
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 H. L. PLAINE
 M. L. POOL
 R. A. POPHAM
 J. RANDALL
 W. A. RICE
 P. ROTHMUND
 W. P. SPENCER
 T. C. SURRAKER
 J. VERDUIN
 W. R. ZEITLER

REPORT OF THE SIXTY-SEVENTH ANNUAL MEETING OF THE OHIO ACADEMY OF SCIENCE

The 67th annual meeting was held on the campus of the University of Akron during April 10 to 12, 1958. It was the first Academy meeting to be held at that institution. A total of 488 registered for the meetings of the Senior Division. Dr. Walter C. Kraatz and his local committee made the arrangements for meetings, housing and dining facilities. Field trip arrangements were made by Professor Paul Acquarone for the sections of Zoology, Plant Sciences, and Conservation; by Professor Glen W. Frank for the section of Geology. The Executive Committee and the Council held meetings on April 10 for the transaction of business.

On Friday, April 11, ten sections and one subsection held meetings in the following fields: Zoology, Plant Sciences, Genetics, Geology, Medical Sciences, Physics and Astronomy, Geography, Chemistry, Science Education, Anthropology and Sociology, and Conservation. More than 150 research papers were presented and discussed. A special lecture, "Federal Program for Improving Science Education," was given by Dr. Bowen C. Dees, Deputy Director of the National Science Foundation, under the sponsorship of the section of Physics and Astronomy. Another on "Recent Advances in Rubber Chemistry," was delivered by Dr. James D'Ianni under the auspices of the section of Chemistry. Symposia and panel discussions were held in the sections of Geology, Physics and Astronomy, Geography, Chemistry, and Conservation. Throughout the day on Friday the Junior Division sponsored the Tenth Annual State Science Day in which 877 students from a record number of 233 schools participated. These had been selected from 4934 students who took part in the eight District Science Day meetings held earlier throughout the state. Sectional meetings were suspended at 11:00 A. M. to give all members of the Senior Division an opportunity to view the projects and exhibits of the junior members. Commercial exhibits were presented by several companies. A tea was held Friday afternoon for visiting ladies. Wives of faculty members of the the University of Akron and of Academy officers served as hostesses.

The annual banquet and business meeting were held in the University Club Friday evening. Dean Ernest H. Cherrington of the University of Akron served as toastmaster. Greetings from the University of Akron were given by President Norman P. Auburn and the response was made by Dr. Robert M. Geist who served as president of the Academy in 1956-1957. Dr. Walter C. Kraatz, president of the Ohio Academy of Science, delivered his presidential address entitled, "Pseudo-Science and Anti-Science in an Age of Science." Professor G. G. Acker, as Executive Secretary of the Junior Division, announced awards to outstanding high school teachers and science departments. At the business meeting officers were elected to serve for the coming year. Appointments were also announced. These new officers and

committee members are listed at the head of this annual report. A constitutional amendment, adding the Director of Public Relations to the membership of the Executive Committee, was approved. Ten members of the Academy were announced as newly elected Fellows. Their names and section letters are as follows:

F—EVERETT H. BUSH
C—CHARLES E. GRAHAM
G—ERIC S. GRAHAM
F—WILLIAM N. HARRIS
I—DONALD P. IRISH

C—WAYNE D. MARTIN
C—GEORGE E. MOORE, JR.
C—FLOYD R. NAVE
H—JOSEPHINE RANDALL
C—WARREN G. STEEL

Dr. R. V. Bangham presented a resolution prepared by the Resolutions Committee.

On Saturday the section of Physics and Astronomy held a joint meeting with the Ohio Section of the American Physical Society. The section of Geology held an all-day field trip, and another trip was sponsored jointly by the sections of Zoology, Plant Sciences, and Conservation.

Respectfully submitted,

GEORGE W. BURNS, *Secretary*

REPORT OF THE EXECUTIVE COMMITTEE AND THE COUNCIL

The Executive Committee met on October 12, 1957, December 6, 1957 and April 10, 1958; the Council met on December 7, 1957 and April 10, 1958. The autumn meetings were held at The Ohio State University in Columbus and the spring meetings were held at the University of Akron. Following is a brief summary of the more important actions taken.

1. *Meetings of the Executive Committee.*—The temporary committee on Training and Certification of Science Teachers was asked to present a series of specific proposals on the State Department of Education requirements to the Council; this report is given under Committee Reports later in this Annual Report. It was agreed that the process of nomination of Fellows would not be reorganized. Dr. Ralph Dexter was continued as a temporary committee of one on Academy history. The Committee on Institutional and Corporation Members was also continued as a temporary committee. A proposed amendment to the Constitution making the Director of Public Relations a member of the Executive Committee was approved, and the Secretary was instructed to follow constitutional provisions in bringing the proposal before the membership. This amendment was subsequently approved at the annual business meeting of April 11, 1958.

Two gifts of \$50.00 each were received from Dr. C. M. Goethe of Sacramento, California for the purpose of aiding married students with children in becoming members of the Academy. By April 30, 1958, eleven such memberships had been awarded. In view of reports submitted from the several sections, it was agreed to continue holding Junior Academy meetings concurrently with those of the Senior Division, and to continue the practice, begun in 1957, of adjourning morning sectional meetings at eleven o'clock to permit judging and viewing of the Junior Division projects and exhibits by members of the Senior Division.

Mr. Acker reported that work is progressing on a Junior Academy medallion for membership pins. An additional appropriation of \$500.00 to the Junior Academy in whatever categories needed was made.

A temporary committee, consisting of Dr. Popham, chairman, Professor Acker and Dr. Geist, was appointed to study the possibility of creating the post of Executive Secretary of the Academy. The report of this committee, made in April, was accepted and presented to Council for its approval.

It was agreed that signers of petitions for the establishment of new sections must either be members of the Academy or submit with their signature on such petitions membership applications and payment of first year dues; they must also indicate their present sectional affiliation and whether they would transfer to the new section, if and when established.

2. *Meetings of the Council.*—Announcement was made by Mr. Acker of the establishment of a new district of the Junior Division, the North Central, with headquarters at Heidelberg College. A plea was made by the Director of Public Relations, Mr. Coash, for a better flow of publicity material from the Executive Vice-Presidents and for abstracts of papers which are condensations of those papers and which include the results of the research being reported upon.

After discussion of the report of the Committee on the Training and Certification of Science Teachers it was agreed to accept the report and, in conformity with the request of the committee chairman, to ask the president to appoint a new committee to continue the work.

Attempts to secure the fifty signatures to petitions requesting the establishment of a section of Genetics have not yet been successful, but efforts to do so will continue.

The report of the Committee on an Executive Secretaryship was accepted, and it was agreed that the necessary implementing committee be appointed as early as possible.

Reports were presented by all officers and committee chairmen. Their annual reports are

presented in the following pages. Membership in the Senior Division as of April 30, 1958 was 1272, an increase of 100 over one year ago.

The next annual meeting was scheduled for Capital University on April 16-18, 1959.

Respectfully submitted,

GEORGE W. BURNS, *Secretary*

REPORT OF THE TREASURER

FISCAL YEAR 1957

ACADEMY BUSINESS

	1957	1956
RECEIPTS:		
Bank Balance, January 1	\$10,735.77	\$ 4,803.54
Membership Dues	4,160.00	4,145.50
Sale of Publications	6.14	6.06
U. S. Bonds cashed	—	150.00
U. S. Bonds interest	47.50	47.50
National Science Foundation Grant	4,000.00	4,800.00
Gift—C. F. Kettering	—	1,000.00
Gift—C. M. Goethe	50.00	50.00
Junior Academy	1,022.00	801.15
Refund	10.00	—
From Res. Fund, BancOhio Stock	22.00	—
	<hr/> \$20,053.41	<hr/> \$15,803.75
EXPENDITURES:		
Subscriptions and Engraving, Ohio Journal of Science	\$ 3,068.54	\$ 2,089.62
Printing Annual Report	165.51	261.70
Printing Announcements and Notices	215.00	434.38
Public Relations	65.92	—
Postage, office supplies, bank charges, auditing and other administrative expense	1,049.05	596.50
National Science Foundation Grant	2,675.93	704.87
Junior Academy	1,320.97	958.91
Academy Conference	11.50	—
BancOhio Stock	37.84	22.00
Modern Finance Co.	8,000.00	—
Bank Balance, December 31	3,443.15	10,735.77
	<hr/> \$20,053.41	<hr/> \$15,803.75
Excess Income over Expense	\$ 707.38	\$ 5,932.23

RESEARCH FUND

RECEIPTS:		
Bank Balance, January 1	\$ 448.79	\$ 121.44
Interest, Savings Account	83.17	73.64
U. S. Bonds Cashed	—	100.00
U. S. Bonds Interest	5.00	7.50
BancOhio Dividends	44.60	41.25
Grant, A.A.A.S.	—	255.00
Bank Service Overcharge	3.69	—
	<hr/> \$ 585.25	<hr/> \$ 598.83
EXPENDITURES:		
Grants	\$ —	\$ 105.00
Bank Service Charges	1.00	5.75
Interest still in Savings Account	83.17	39.29
BancOhio Stock to Academy	22.00	—
Bank Balance, December 31	479.08	448.79
	<hr/> \$ 585.25	<hr/> \$ 598.83
Excess Income over Expense	\$ 30.29	\$ 327.35

Respectfully submitted,

ELTON F. PADDOCK, *Treasurer*

REPORT OF THE ACADEMY LIBRARIAN

The Academy's *Ohio Journal of Science* is now being used to obtain exchange publications from a total of 543 institutions (135 domestic and 408 foreign). This represents a net total increase of 16 over a year ago, although 18 new institutions have been added, bringing in 32 new titles in exchange. Two foreign institutions were dropped from exchange, one because its publication ceased and the other because of its merger with another division.

A total of 16 Special Papers were sold through the Gift and Exchange Division of Ohio State University Library, bringing in a revenue of \$16.92.

The Librarian would also like to place on record his thanks to Miss Mary B. Pinson, Gift and Exchange Librarian, Ohio State University, who carried on the actual work of exchanges while he was employed in another department and not able to maintain constant contact with the work.

Respectfully submitted,

DONALD J. PEARCE, *Librarian*

REPORT OF THE JOINT ADMINISTRATIVE BOARD OF
THE OHIO JOURNAL OF SCIENCE

The annual meeting of the Joint Administrative Board of The Ohio Journal of Science was held at Columbus on March 1, 1958. The meeting was called to order by Board Chairman Meyer. Present were Mr. B. S. Meyer and Mr. Robert L. Bates, representing The Ohio State University; Mr. C. E. Hoel, representing The Ohio Academy of Science; and Mr. H. L. Plaine, Mr. T. H. Langlois and Mr. R. A. Popham of The Ohio Journal of Science staff. Mr. Warren P. Spencer was unable to attend.

Minutes of the last meeting were approved as read.

The report of the Editor, Mr. Plaine, was approved as read. A copy of this report is attached to these minutes. The Editor indicated that the Journal is only 4 to 6 months behind in the publication of papers and book reviews. This time delay in publication of papers is considered to be about minimum.

The Book Review Editor, Dr. Langlois, reported that 44 book notices had been published in Volume 57. He also indicated that forthcoming issues of the Journal will carry lists of books which have been received and which are considered to be appropriate reading for scientists.

The report of the Business Manager was approved as read. This report which accompanies these minutes, is mainly in the form of a financial statement for Volume 57. Mr. Popham reported that had it not been for a contribution made by Charles F. Kettering through The Ohio Academy of Science, The Ohio Journal of Science would have shown an excess of expenses over income. He pointed out the necessity for seeking an additional source of income for 1958. The circulation of the Journal was reported to be approximately 1880.

The following staff members were elected for the year 1958-1959: Mr. Plaine, Editor; Mr. Popham, Business Manager; and Mr. T. H. Langlois, Book Review Editor.

In asking for nominations for Chairman of the Board for the year 1958-1959, Dr. Meyer indicated that he intended to ask President Fawcett to appoint some person to replace him on the Board. Dr. Meyer expressed the feeling that tenure of board members appointed by the President should be for definite periods of time and suggested the possibility of three-year appointments. Mr. Charles E. Hoel was elected Chairman of the Board for the year 1958-1959.

Dr. Meyer stated that he would appoint a committee to audit the books of the Business Manager for the year 1957. He indicated that the committee members would be Mr. S. S. Humphrey, and Mr. Wilbur Tidd.

After some discussion of the financial condition of the Journal and prospective expenses of the Journal during the year 1958, Mr. Popham was instructed to ask the Executive Committee of The Ohio Academy of Science to approve the Joint Administrative Board's request to allow The Ohio Journal of Science to seek a gift of necessary supplementary funds for the operation of the Journal from the Kettering Foundation directly. If the Executive Committee grants the request, Mr. Popham was instructed to request the sum of \$1,000.00 from the Kettering Foundation for the year 1958.

Mr. Popham was instructed to write a letter to President Fawcett of The Ohio State University requesting the sum of \$2500 from the University in payment of subscriptions which the Library uses as a basis for exchanges with other scientific organizations and publications. After some discussion of editorial matters and format of the Journal, the Board instructed the editor, business manager and book review editor to make any changes which they deem desirable with respect to the color, and finish of the paper used for the cover of the Journal.

Respectfully submitted,

RICHARD A. POPHAM, *Secretary of the Board*

THE OHIO JOURNAL OF SCIENCE
VOLUME 57—FISCAL YEAR 1957

BALANCE SHEET

RECEIPTS

Bank balance at beginning of period.....	\$2,751.32
O.S.U.—paid for subscriptions.....	2,500.00
O.A.S.—paid for subscriptions.....	2,009.00
Non-members—paid for subscriptions.....	663.90
Separate numbers, volumes and reprints sold.....	210.75
50 year index sold.....	20.00
O.A.S.—paid $\frac{1}{2}$ cost of plates.....	259.54
O.A.S.—paid for annual report.....	165.51
Miscellaneous.....	67.53
Advertisements.....	447.18
Charles F. Kettering—Gift.....	800.00
	<hr/>
	\$9,894.73

EXPENDITURES:

Spahr and Glenn—printing O.J.S.....	\$5,482.91
Bucher Engraving—plates.....	664.80
Postage and express.....	240.74
Labor.....	52.50
Office expenses and bank charges.....	145.69
Advertising of the O.J.S.....	10.00
Reprints.....	0.00
Mailing envelopes.....	255.37
Refunds.....	1.00
Miscellaneous.....	67.53
Bank balance at end of period.....	2,974.19
	<hr/>
	\$9,894.73

THE OHIO JOURNAL OF SCIENCE
REPORT OF THE EDITOR OF VOLUME 57, 1957,
to the Joint Administrative Board

Volume 57 of The Ohio Journal of Science contained 408 pages, of which 354 pages were devoted to 41 scientific papers in 8 fields of science (as designated by sections of The Ohio Academy of Science); 16 pages were devoted to affairs of the Academy; 11 pages to advertising; and 27 pages to announcements, book notices, index, and routine journal copy. Of 63 books received, 44 notices were published according to Dr. T. H. Langlois, the Book-Review Editor.

The symposium on Forest Tree Physiology was published in the November issue; it contained seven separate papers.

Respectfully submitted,

HENRY L. PLAINE, *Editor-in-Chief*

REPORT OF THE DIRECTOR OF PUBLIC RELATIONS

The first year in office of the new director was chiefly one of finding the way. With the very fine assistance of the people in the News Bureau at Bowling Green State University, a pattern of news releases was established. Six releases were sent out to about 175 newspapers and other interested parties throughout the state. Without subscription to a clipping service there is no way of discovering the effect of the coverage. The material is there; all we can do is hope that some will use some of it.

Invitations to the meetings were sent to all these parties. Abstracts and copies of *some* papers are being made available to the press. It was the understanding of the director that all sections were required to have abstracts available this year, yet only about half of the sections responded to the director's (admittedly belated) request for copies of these abstracts. It is recommended that future instructions to the Executive Vice-Presidents include the submission of 20 copies of all abstracts to the director of public relations at least 10 days before the meeting. It is also recommended that all special speakers or panels, including the president, submit full copies of their papers in the same manner.

A budget of \$75.00 was provided for public relations this year. \$38.25 was spent on postage. \$51.00 was spent on typing. \$3.00 was spent on mimeographing. This is a total of \$92.25. The treasurer was kind enough to permit the overage. Even so, an additional sum was spent on the work involved. Therefore, it is recommended that the budget for next year be \$125.00.

One further recommendation is made. The major reaction from the press is most favor-

able toward the symposia and major addresses. Therefore, this year's program is considered a very superior one from the standpoint of publicity possibilities. Favorable comment has also been received from members of the Academy. It is therefore recommended that this trend be encouraged, even to the extent of provision of expense money for outstanding speakers, perhaps on a rotating basis among the sections.

Respectfully submitted,

JOHN R. COASH, *Director of Public Relations*

REPORT OF THE EXECUTIVE SECRETARY OF THE JUNIOR DIVISION, OHIO ACADEMY OF SCIENCE

This report covers the tenth year of activities of the Junior Division of The Ohio Academy of Science. The year's operations were characterized by the expansion of programs stipulated by the constitution (District Science Days; State Science Day; Newsletter; Scholarship Tests; Teacher Awards; and Special Awards); and the initiation of several new ideas (Local Science Days; Science Clubs; Brochures; and Insignia). It has proven to be an extremely active first year for the present Executive Secretary.

An eighth district was established with its center at Heidelberg College, Tiffin, Ohio. The new district embraced an area previously serviced by Northwest, Central and Northeast districts, and included the following counties: Ottawa, Sandusky, Seneca, Wyandot, Marion, Morrow, Crawford, Huron, Erie, Lorain, Ashland, and Richland. Professor A. G. McQuate was appointed University Councilman, and Donald Kingsmore was elected High School Councilman. The First District Science Day was held March 29, 1958, with 684 students participating. The District Committee is interested, enthusiastic and capable.

A grand total of 4934 Junior and Senior High School students participated in the eight district science days. This represents an increased participation over 1957 of 1378 students. This figure is not a true indication of the increased interest shown by teachers and students in the Science Day Program because of definite steps taken by some districts to limit the number of projects. Central District restricted the number of entries from individual schools to five percent of the enrollment. This measure was effective in limiting the number of participants to the better projects and encouraged the establishment of several Local Science Days. A brief summary of 1958 District Science Day participation follows:

March 22—Southeast, Ohio University.....	295
—East, Muskingum College.....	217
—Central, Ohio State University.....	647
—Southwest, Miami University.....	651
—West, Wittenberg College.....	522
—Northwest, Bowling Green State University.....	1263
March 29—Northeast, Kent State University.....	655
—North Central, Heidelberg College.....	684

The 1958 State Science Day was the largest in the ten year history of the Junior Division. 877 students involving 789 projects registered. A record of 233 schools were represented by participants.

Daniel Friedberg, Leetonia, Ohio continued as Editor of the Newsletter. He was ably assisted by the editorial board with Mrs. Clara Kenny as chairman. Dr. Frederick H. Krecker supervised the printing and distribution of three issues of 5000 copies each. The fourth issue is scheduled for May, but will be delayed until October. This should serve as an impetus for initiating project activity for the 1959 program. The 1958 Newsletter was printed according to the style and format inaugurated last year.

The psychological service of Akron University administered the Scholarship Tests this year. More than 80 applications for testing were received. Mr. William Hornbrook, Eaton, Ohio has contacted the participating colleges and universities and has received renewed commitments from most of them.

An amendment to regulations has been introduced to permit the awarding of *either* A.A.A.S. membership *or* membership in the scientific society of field of interest to Outstanding Teachers. Dr. Mildred Miskimen, Miami University, is chairman of a committee which is studying and re-evaluating the procedures and criteria for the selection of Outstanding Teachers. A list of the Outstanding Teachers elected for the year 1958 follows:

Southeast	—Mr. Richard H. Essex, Athens Junior High School
East	—Mr. Fred Reynolds, Bellaire High School
Northeast	—Mr. Robert E. Stevens, Lincoln High School, Canton, Ohio
North Central	—Mr. Harold Freshwater, Lorain High School
Central	—Mr. Joseph A. Ralston, Westerville High School
Southwest	—Mr. T. Hadley Diehl, Cincinnati
West	—Mrs. Margaret Oswalt, Jackson Local (Darke Co.) Union City, Ind.
Northwest	—Miss Eleanor Longbrake, Scott High School, Toledo, Ohio

The Kroger Company has agreed to extend the award to include the newly formed North Central District effective in 1958. Mr. Irwin Slesnick, University School, Ohio State University, Chairman of the Special Awards Committee, has continued the revision of procedures and criteria for determining the award winners. Effective this spring, the awards will be presented in the same calendar year for which they were won.

A listing of the 1957 Kroger Award Winners follows:

Southeast	—Fort Frye High School, Beverly, Ohio
East	—Belle Valley High School
Northeast	—Thomas W. Harvey High School, Painesville, Ohio
North Central	—Not eligible in 1957
Central	—Westerville High School
Southwest	—Wilmington High School
West	—Blume High School, Wapakoneta
Northwest	—Fostoria High School

A program of affiliating local Science Days with the Junior Division was inaugurated this year. In the face of numerous requests for aid and advice in planning and operating science days, it seemed advisable to strengthen the relationship between the Junior Division and various high schools. In order to affiliate, the Director of the local science day agrees verbally to use Junior Division Standards, Criteria and Ratings, and to select projects from the local science day to participate in the District Science Day. In return, he is eligible for aid and advice from the Junior Academy. The Junior Division will furnish supplies in the form of entry cards, award certificates and membership cards. Certificates of affiliation signed by the president of the Academy have been issued to each of the following: Perrysburg Science Night; Liberty Center Science Fair; Fostoria Science Day; Jackson-Junior Science Fair; St. Mary-of-the-Springs Science Fair; Bishop Watterson Science Fair; Scio Science Fair; Great Northern Science Association Science Fair; Champaign County Science Fair; Morrow County Science Fair. The general trend seems to include the elementary grades in the science day program at local school level. Morrow County and Westerville included all 12 grades in their fairs. The results of this program of affiliation have been most gratifying. The reaction of the public to these local science days has been amazing. Estimated attendance at the Morrow County Science Fair is more than 10,000.

The brochure authorized for the Junior Division is in the final stages of preparation. Work has been temporarily suspended until vacancies in the Junior Division Council have been filled.

An effort has been made by Fred Reynolds, Bellaire, to secure a distinctive, pin-type insignia for distribution to members of the Junior Division. A local branch of Clevite Corporation was awaiting approval of the main office before proceeding to make the dies. No further information has been received. Dr. Richard A. Popham, Ohio State University, made contact and received samples from a Columbus firm. Roulet Jewelers of Toledo are interested in the project. Progress to date has been slow but work is proceeding.

Changes in Administrative regulations have been approved as follows:

- a. Papers limited to 2000 words or less
- b. Each student limited to one entry.

The following changes in University Councilmen are announced:

- a. Dr. William E. Wilson replaces Dr. Mildred Miskimen, on leave, at Miami.
- b. Dr. W. Hugh Barnes, Muskingum College, to be replaced (College Rotation Policy)
- c. Dr. Robert Ingham, Ohio University, to be replaced (resigned).

Owens-Illinois Glass Company of Toledo donated 700 sets of souvenir glasses for distribution to State Science Day participants.

Mr. Joseph Krauss, Director of National Science Fair, appeared before the Junior Division Council to ask for affiliation of the Junior Division with Nation Science Fair. Dr. John Crites, Ohio State University, was appointed chairman of a committee to study his proposal. The committee recommended against affiliation and was upheld by the Junior Division Council.

Your Executive Secretary and Assistant Executive Secretary attended the annual meeting of the Academy Conference at Indianapolis in December. The Ohio Academy can feel justly proud of the accomplishments of its Junior Division.

In spite of the increased load of nearly one thousand pieces of outgoing correspondence, several circuit riding speeches, over 2000 miles of travel, and constant defense of policy, it has been an interesting and inspiring year. One hundred percent cooperation of all council members has added to my pleasure.

Respectfully submitted,

GERALD ACKER, *Executive Secretary*

REPORT OF OHIO FLORA COMMITTEE

Preliminary list of Compositae, by Robert W. Long, appeared late in spring of 1957. This list includes 449 names. Work on this large family is continuing; this part of the Vascular Flora of Ohio will be prepared jointly by Robert W. Long and T. Richard Fisher.

Work on Grasses of Ohio continues; this will be a section of that part of the Flora concerned with the Monocotyledoneae, which, it is planned, will be the next Part.

Woody Plants of Ohio:

Text (465 pp., exclusive of glossary and index) completed, and being critically checked. Large proportion of checking of herbarium specimens has been completed, but some very complex genera remain. The specimens that are checked will be the basis for mapping distribution. Illustrations of species about 85% completed. Publication is being investigated.

Respectfully submitted,

E. LUCY BRAUN, *Chairman*

REPORT OF THE COMMITTEE ON THE TRAINING AND
CERTIFICATION OF SCIENCE TEACHERS

The specific undertaking of the Committee as requested by action of the Council, was to take up in order and discuss the "Laws and Regulations Governing the Certification of Teachers. . . ." as published in the "little orange book" put out by the State Department of Education on January 1, 1955. The page references which follow, all refer to pages in the "little orange book."

The Committee did its work this year by correspondence. This method was used: (1) because of the long travel distances to a central meeting place necessary for several committee members, (2) the illness during a part of the time of the chairman, and (3) the thought and hope that about as good results could be obtained by the correspondence method at a considerable saving of time, energy, and expense.

The Committee has surveyed some seven Committee reports and has found that these reports all agree that around 60 semester hours or approximately one half the number of hours for the degree should be in subject matter or content material aside from work in general education and professional courses.

The present requirement in science for the certification of elementary teachers (p. 18) is 8-12 semester hours. The majority of the Committee (7 out of 10) think that this minimum is too low; a minimum of 24-28 semester hours will be better—12-14 hours of biological science and 12-14 hours of physical science which must include some Astronomy and some Geology. The elementary teacher holds a key position in the present crisis in science teaching.

The present certification requirement for teaching biology in high school is 15 semester hours of biology (p. 22). This requirement ranks Ohio very low among the other states in the nation. The majority of the Committee (8 out of 10) thinks that the minimum requirement of 15 semester hours is too low and recommends that the requirement be raised to around 30 to 35 hours with supporting courses in chemistry, physics, geology and astronomy. When all aspects of biology are considered it is as broad a subject as physical science and should claim as much time.

The present certification requirement for teaching General Science in the Junior High School (p. 23) is 21 semester hours in physics, chemistry, and biology. All members of the Committee agree that this minimum requirement is too small and that more science should be required. Four out of ten think that 30 semester hours should be required, including work in astronomy and geology. Four think that 45 to 60 hours should be required. Two think that ultimately the general science certificate should be dropped and the teacher should earn the broad Comprehensive Certificate. We shall return to this later.

The present certification requirement for the comprehensive science major for High School Science Teaching (p. 26) is a total of 45 semester hours. Of this total, 36 semester hours are to be taken in biology, chemistry, and physics—20 semester hours in one, and 8 semester hours in each of the other two. The excess 9 semester hours is to be invested in astronomy, geology, meteorology, physiography, or mathematics. None of the Committee think that 45 semester hours in science are enough. They all (10 of them) voted a comprehensive science major of 60 hours of science. The Committee divided 4 to 6 on the kind of 60 hour comprehensive major preferred. Four prefer a major that has both breadth and, in one subject, depth. The other six prefer a comprehensive major of breadth, but without much depth anywhere. We shall return a little later to these possible two kinds of comprehensive majors.

The present certification requirement for the Physical Science Major for High School Teachers (p. 26) is 21 semester hours made up of basic courses in both physics and chemistry. All of the Committee voting agreed that 21 semester hours is not enough. Eight agree that a minimum of 32-35 hours in physics and chemistry be required, plus supporting electives in science and mathematics to total 60 hours. Some favor making all the electives to make 60 hours in science, assuming that there will be prerequisite in mathematics required by the courses in physics. Two of the ten favor requiring a comprehensive major for these physical

science majors that have both breadth and, in the physical science, more depth, even if the total required hours go above 60.

Let it be noted that on the part of a small number (2) of the Committee, the ultimate elimination of certificates in general science, physical science, and possibly biology is favored. The idea is that future general science teachers might take Comprehensive Major A which would be composed of 60 hours of breadth, but not necessarily depth. The future physical science and possibly the biology teachers would take Comprehensive Major B, which would be made up of 60 semester hours or more and would have breadth and at the same time have more depth in either physics, chemistry, or biology.

In response to my request for ideas, various Committee members sent in ideas which, when later sent out for the entire Committee to read, received much approval from some of the other members of the Committee. Some of the ideas are: (1) We, in science, should work cordially with the people in the field of education on this important problem; (2) We should talk strongly for *more* science rather than for less education; (3) We should be constantly working to improve our science courses for teachers—many science courses designed for training chemists, physicists, doctors, geologists, etc., are possibly not best for teacher training—many of them are too specialized; (4) We still have the problem—a very real one—of working out proper courses in science for the fifth year of work, for both elementary and high school teachers—work that can be used for graduate credit.

Respectfully submitted,

HARRY A. CUNNINGHAM, *Chairman*

REPORT OF THE ACADEMY HISTORIAN

Since the publication of William H. Alexander's history of the Ohio Academy of Science (*Ohio Journal of Science* 41(4): 288-312. 1941), there has been no summary of major events and officers. This report brings up to date the changes which have taken place in the sectional organization of the academy and a review of the annual meetings with a listing of major officers.

I. Changes in the Organization of Sections

1942—Section of Anthropology organized.

1943—Name of Section of Botany changed to Plant Sciences.

1947—Name of Section of Junior Academy changed to Science Education.

1950—Name of Section of Anthropology changed to Anthropology and Sociology.

1951—Section of Conservation organized.

1953—Subsection of Genetics organized.

1954—Sections of Psychology and of Mathematics discontinued.

II. REVIEW OF ANNUAL MEETINGS AND PRINCIPAL OFFICERS, 1941-1958

Time and Place of Annual Meeting	President	Secretary	Treasurer
1941 Western Reserve Univ. and Case School of Applied Science Cleveland	Stephen R. Williams	W. H. Alexander	Edward S. Thomas
1942 Denison University, Granville	Eugene Van Cleef	A. W. Lindsey	" "
1943 Ohio State University, Columbus	Frederick H. Krecker	" "	C. E. Taft
1944 " " "	H. C. Shetrone	" "	" "
1945 No meeting held			
1946 Ohio State University	J. Ernest Carman	" "	" "
1947 Marietta College, Marietta	H. H. M. Bowman	Rush Elliott	W. M. Tidd
1948 University of Toledo	A. W. Lindsey	" "	" "
1949 Denison University, Granville	George B. Barbour	" "	" "
1950 Capital University, Columbus	Paul B. Sears	" "	Robert M. Geist
1951 Miami University, Oxford	Edward S. Thomas	" "	" "
1952 Kent State University	W. H. Shideler	" "	" "
1953 Ohio State University	G. W. Blaydes	" "	" "
1954 Ohio University, Athens	R. A. Hefner	" "	" "
1955 Ohio Wesleyan University, Delaware	Rush Elliott	Ralph W. Dexter	" "
1956 Wittenberg College, Springfield	Paul Rothmund	" "	Elton F. Paddock
1957 Bowling Green State University	Robert M. Geist	" "	" "
1958 University of Akron	Walter C. Kraatz	George W. Burns	" "

An effort is being made to bring up to date statistical data concerning the development of the academy and to accumulate records of historical importance for the permanent files of the academy. The academy historian is beginning a series of brief reports to the various sections on the historical development of the academy and of the respective sections.

Respectfully submitted,

RALPH W. DEXTER, *Chairman*
Committee on Academy History

REPORT OF THE RESOLUTIONS COMMITTEE

Be it resolved that the members of The Ohio Academy of Science express to the Administration of Akron University, to Dr. Walter C. Kraatz, chairman of the local committee on arrangements, and to the several members of his committee, their appreciation of the excellent facilities and thoughtful hospitality which have contributed greatly to the success of this, the 67th annual meeting of the Academy.

Respectfully submitted,

RALPH V. BANGHAM, *Chairman*

REPORT OF THE NECROLOGY COMMITTEE

for the Period of April, 1957 to April, 1958

During this interval only one member died. This is the smallest number of deaths within the memory of the chairman, whose acquaintance with Academy affairs covers a seventeen year span. The necrology report for 1956 recorded ten, while the 1957 report contained eight obituaries.

Respectfully submitted,

J. T. MADDOX, *Chairman*

CHARLES HENRY BOWEN

District Geologist, U. S. Atomic Energy Commission, Grand Junction, Colorado. Fellow of the Geology Section of The Ohio Academy of Science.

Dr. Bowen was born in Creston, South Dakota, January 20, 1911 and died of a coronary thrombosis January 4, 1958, at Monrovia, California while on a vacation with his family.

After graduating from Glenville High School, Cleveland, Ohio he attended the South Dakota School of Mines and Technology at Rapid City, graduating in 1935 with a degree of Bachelor of Science in Mining Engineering with a geology major. He obtained his master's in 1947, and his doctor's degree in 1952, both from The Ohio State University. While at Ohio State he was at various times, graduate assistant, worked with the Ohio Geological Survey, and was a research assistant professor in the Engineering Experiment Station of The Ohio State University. Since 1955, he was connected with the Atomic Energy Commission. He was the author of twenty-some papers published in engineering journals or by the Ohio Geological Survey. During World War II, he was a sergeant in the U. S. Army Engineers, serving both in the European and the Southwest Pacific theaters of operations.

Dr. Bowen was a member of: American Institute of Mining, Metallurgy, and Petroleum Engineering; Geological Society of America; Society of Economic Paleontologists and Mineralogists; Sigma Xi; and a Fellow of The Ohio Academy of Science. He was active in the local Grand Junction Geological Society.

He is survived by his widow the former Anita Schenck, also a member of the Academy, and two small sons, Charles Randall, age 4 and Keith Henry, age 2.
